2.7) mm^3, p=0.01] tended to be greater in Event-NCLs. The VH-IVUS phenotype changed from BL to FU in approximately half of Event-NCLs and Non-event-NCLs, although the overall prevalence of each phenotype did not change (Table). New TCFAs from non-TCFA phenotype developed in 25/110 NCLs (22.7%), including 4/11 Event-NCLs and 21/99 Non-event-NCLs (36.4% vs. 21.2%, p=0.26).

Event-NCLs		Follow-up				
Baseline		TCFA	ThCFA	PIT	Fibrotic	Fibro-calcific
TCFA	6 (35.3%)	2	4	0	0	0
ThCFA	9 (52.9%)	4	5	0	0	0
PIT	1 (5.9%)	0	0	1	0	0
Fibrotic	0 (0%)	0	0	0	0	0
Fibrocalcific	1 (5.9%)	0	1	0	0	0
Total	17	6 (35.3%)	10 (58.8%)	1 (5.9%)	0 (0%)	0 (0%)
Non-event-NCLs						
TCFA	28 (22.0%)	12	14	2	0	0
ThCFA	46 (36.2%)	9	29	8	0	0
PIT	50 (39.4%)	10	13	27	0	0
Fibrotic	1 (0.8%)	1	0	0	0	0
Fibrocalcific	2 (1.6%)	1	1	0	0	0
Total	127	33 (26.0%)	57 (44.9%)	37 (29.1%)	0 (0%)	0 (0%)

CONCLUSIONS In the PROSPECT study, new TCFAs developed in ~23% of untreated NCLs during median 3.4 year FU. NCLs causing events during FU tended to have greater progression of necrotic core and dense calcium compared to NCLs which did not cause events. A greater increase in plaque volume was also noted in Event-NCLs compared to Non-event-NCLs, although the difference did not reach statistical significance.

CATEGORIES IMAGING: Intravascular

KEYWORDS MACCE - Major adverse cardiac and cerebrovascular events, Virtual histology intravascular ultrasound

TCT-368

Natural history of coronary calcification: A 5-year serial optical coherence tomography study

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BACKGROUND Coronary calcification is a common finding in non-invasive and invasive imaging studies. Coronary computed tomography (CT) coronary artery calcium (CAC) testing is the most widely used and validated score for studying coronary calcification. It is considered to be a strong independent predictor of future adverse cardiovascular events and also gives additional information than the traditional cardiovascular risk factors. We investigated the natural history of the coronary calcification as assessed by OCT in a population with serial imaging over a period of 5 years.

METHODS We screened all patients from ABSORB cohort B trial and we selected only the patients with available OCT data within 6 months (baseline) after scaffold implantation and at follow-up (5 years). In the ABSORB B trial (n=101) patients with a diagnosis of stable or unstable angina or silent ischemia were enrolled and treated with implantation of ABSORB (3.0 x 18 mm). OCT datasets (baseline and 5 year follow-up) were screened for the presence of calcium spots fully visible in their entire extent without the presence of any artifact that may prevent proper contouring of the calcium area.

RESULTS A total of 17 patients had 31 matched lesions with calcified spots at baseline and 5 year follow-up (21 were located outside of the scaffolded segments and 10 in the scaffolded segments). At baseline, the median calcium area (IQR) was 0.44 (0.28-0.72) vs. 0.75 (0.61-0.90) mm2 at 5 years; the mean difference was 0.38±0.50 mm2, p<0.001 (representing an 110±96.3% increase). The rate of progression seems to be slower in those calcium spots within the scaffolded segments compared to those located outside the scaffolded segments. The mean minimum, maximum and mean distances from the lumen remain unchanged over time. On average, the circumferential arc of the calcium reduced slightly (although statistically significant) from 49.18 to 45.98 degrees while the length of the calcium increased not significantly (table 1).

CONCLUSIONS Near-microscopic resolution intravascular imaging modality, such as OCT, allows a very detailed and highly reproducible analysis of the calcium spots. This provides a unique opportunity to study the natural history of coronary calcium. In a period of 5 years, the measured calcium spots doubled their size.

	Baseline	5 years	Mean diff	P
Median calcium areas (IQR), mm^2	0.44 (0.28-0.72)	0.75 (0.61-0.90)	0.38±0.50	<0.001*
Median Min. Dist. From Lumen (IQR), mm	0.17 (0.06-0.25)	0.20 (0.06-0.25)	0.00±0.15	0.631*
Median Max. Dist. From Lumen (IQR), mm	0.31 (0.22-0.51)	0.34 (0.21-0.47)	0.02±0.16	0.389*
Mean Dist. From Lumen, mm	0.26±0.15	0.26±0.14	0.00±0.15	0.890‡
Angle, degrees	49.18 (28.35-62.56)	45.98 (37.07-88.27)	12.37±24.03	0.003*
Length, mm	1.16 (0.85-1.60)	1.23 (0.95-1.76)	0.12±0.52	0.126*

CATEGORIES IMAGING: Intravascular

KEYWORDS Atherosclerosis, coronary, Calcification, OCT

TCT-369

Correlation of Cardiovascular Risk Factors, Angina Patterns and Intravascular Ultrasound Findings: Largest Contemporary Characterization of Target Lesions

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BACKGROUND Patients and plaque's characteristics have been scrutinized to understand how risk factors relate to the hazard of subsequent cardiovascular events. However, the clinical and health outcomes measures assessed by the Seattle Angina Questionnaire (SAQ) have never been correlated with the characteristics of obstructive plaque determined by intravascular ultrasound (IVUS). The aim of the present study is to describe the pre-treatment intravascular ultrasound (IVUS grey scale and backscatter tissue data) findings of obstructive lesions according to patient demographics and health outcome measures in the ABSORB II trial (ClinicalTrials.gov, number NCT0142528).

METHODS An independent corelab (Cardialysis, Rotterdam, The Netherlands) analyzed IVUS segments flanked by the presence of side branches beyond 5mm distally and 5mm proximally to the to be treated regions. Patient demographics, anthropometric measures, cardiovascular risk factors and baseline SAQ were correlated with IVUS findings. A multivariate analysis was run to identify variables related to plaque burden and the largest necrotic core area in these obstructive lesions.

RESULTS 464 patients had pre-procedural IVUS grey-scale and 438 patients had IVUS radiofrequency assessment before device implantation. The mean age was 61.5±10.0 years old, 23.3% were female and 25.0% were diabetics. Clinical characteristics were able to differentiate plaque features by IVUS and VH IVUS. Patients with abdominal obesity (P<0.01) and increase in body mass had more negative remodeling (P=0.01), a finding that was related to worse angina frequency scores by SAQ (P<0.01). Reduction in HDL-C (P=0.01), lesion in RCA (P<0.01), lesion in proximal LAD (P<0.01) and worse angina stability by SAQ (P=0.03) were independently correlated with plaque burden. Smaller lumen area (P<0.01), larger vessel area (P<0.01) and more physical limitation by SAQ (P=0.03) were independently correlated with the maximum necrotic core area.